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IN THE

Supreme Court of the United States

OCTOBER TERM, 1960.

No. 553

ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY, ET AL.,

Petitioners,

vs.

C. K. WILLIAMS & CO., INC., ET AL.,

Respondents.

PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

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PETITION FOR WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE SEVENTH CIRCUIT.

Petitioner, Armour Research Foundation of Illinois Institute of Technology, prays that a writ of certiorari issue to review the judgment of the United States Court of Appeals for the Seventh Circuit, entered in the above-entitled case on July 12, 1960. A Petition for Rehearing was filed therein on August 8, 1960 and said Petition was denied on August 30, 1960.

OPINIONS BELOW.

The Opinion of the District Court, reprinted in Appendix to Brief for Plaintiffs-Appellants, PA* 3515-3557, is reported in 170 F. Supp. 871. The Opinion of the Court of Appeals, reprinted in Appendix B annexed hereto, is reported in 280 F. 2d 499.

JURISDICTION.

The judgment of the Court of Appeals was entered on July 12, 1960 (App. B). The denial of the Petition for Rehearing was entered on August 30, 1960 (App. C). The jurisdiction of this Court is invoked under 28 U. S. C. Section 1254(1). Federal jurisdiction of the case is based upon 28 U. S. C. Section 1338, it being an action arising under the Patent Laws of the United States.

QUESTIONS PRESENTED.

1. Is the spirit of Article I, Section 8, of our Constitution, which provides that The Congress shall have power * * * "To promote the progress of science and useful arts, by securing for limited times to authors and inventors the *exclusive* right to their respective writings and discoveries", fulfilled by the striking down through hindsight and on theretofore unrecognized and unrelated prior publications and activities, of an invention which revolutionized the art of magnetic tape recording and created a substantial industry which affects a material cross-section of our daily lives?

2. May a claim to a unitary article of manufacture, in this case a magnetic impulse record member (magnetic recording tape) having as the active magnetic element

* PA is the abbreviation for Appendix to Brief for Plaintiffs-Appellants, copy of which is being filed herewith.

thereof a layer of magnetic iron oxide particles adherently bonded to a non-magnetic backing, be declared invalid for lack of invention over prior art, where to reach that conclusion requires the selection of an element, viz., a specific magnetic iron oxide having a particular combination of physical and magnetic properties not theretofore described in any prior art reference and not theretofore known to be possessed by any magnetic iron oxide that had been disclosed in any prior art reference, and where such conclusion further requires the substitution of such magnetic iron oxide for theretofore known magnetic iron oxides in a prior art magnetic impulse record member contrary to any prior art suggestion that such substitution would result in any improvement over the best prior art magnetic impulse record members theretofore known?

3. May an appellate court, in reliance upon Rule 52(a), Federal Rules of Civil Procedure, refuse to accord to the appellant a full review of the facts as presented by documentary evidence* in the light of the law applicable thereto where such applicable law has not been properly applied by the lower court and if properly applied would produce a different result?

4. More specifically, where a claim in suit (claim 26) is directed to a magnetic impulse record member embodying magnetic iron oxides possessing a specified combination of physical and magnetic properties, may such claim be declared invalid because of prior public use or sale of mag-

* Williams & Thewlis (PA 3005).
Kraeber & Luyken (PA 3011).
Bureau of Mines Bulletin No. 425 (PA 2913).
Welo & Baudisch (PA 2256).
Johnson British Patent (PA 3647).
OSRD Report No. 5325 (PA 2751).
Correspondence Armour-Minnesota (PA 1957, 2461).
Correspondence Minnesota-C. K. Williams (PA 2143-45).
Correspondence C. K. Williams-National Standard (PA 2777-2804).

netic iron oxides that were later found to be similar but that were not known at the time of such use or sale to possess such combination of properties and that were not reduced to practice for the claimed use by embodying such oxides in a magnetic impulse record member and successfully testing the same until less than one year prior to the filing date of the patent!

STATUTE INVOKED.

The pertinent statutory provisions here invoked are printed in Appendix A annexed hereto, *infra*. They comprise Article I, Sec. 8, of the Constitution and Sections 102 (a) and (b), 103 and 282 of Title 35 U. S. C. (Sections of Public Law 593, 82d Congress).

STATEMENT OF THE CASE.

PLEADINGS IN GENERAL.

This action was filed as C. A. 3200 by Armour on May 27, 1955, charging infringement by Williams of the Camras Patent No. 2,694,656 (PA 45). Respondent Williams filed its answer and a counterclaim for judgment declaring the patent invalid, unenforceable and not infringed (PA 49).

On order of the District Court, Minnesota was brought in as an additional party plaintiff (PA 66).

Civil Action No. 3438 was instituted by Armour on January 21, 1956 against Technical Tape (PA 1).

Civil Actions Nos. 3200 and 3438 were consolidated for trial (PA 109).

The District Court held the patent in suit invalid and for that reason not infringed (PA 3556).

The Court of Appeals affirmed the holding of invalidity.

BACKGROUND OF MAGNETIC RECORDING.

The art of magnetic recording is an old one. Its usefulness was demonstrated by the Germans during World War II to such an extent that our Government, in 1945, delegated experts including representatives of Brush Development Company, (a pioneer American manufacturer of magnetic recorders) to investigate the subject with a view to recommending the best magnetic tape for use in such recording. With all of the prior art available, these experts concluded in their Report (O. S. R. D. Report No. 5325, dated June 30, 1945; PA 2751-2772) that the best magnetic tape was that coated with low coercive

force "Magnetite" (PA 2765-2768), a material used by the Germans and furnished in the United States by respondent, C. K. Williams & Co., Inc., under the designation "BK 247." This material had a coercive force, H, of 115 to 130 (PA 2788) which corresponded with that of the German tape (PA 703).

This *low coercive force tape*, made with BK 247 or equivalent material used by the Germans, was objectionable in the following important respects, which prevented its large scale adoption and use:

(a) High tape speeds in the order of one meter per second were required in order to satisfactorily record and reproduce high frequency notes (signals). This involved tape requirements which were unwieldy and uneconomical—more than 10,800 feet of prior art tape to record a one hour program.

(b) Relatively low output (signal to noise ratio) made the tape impractical for radio broadcasting, television recording, telemetering, instrumentation and many important scientific uses now satisfactorily served by the tape of the patent in suit (PA 926-7).

CAMRAS PATENT IN SUIT NO. 2,696,656.

Marvin Camras, a young scientist associated with petitioner, Armour Research Foundation of Illinois Institute of Technology, who previously had made an important contribution to the art of magnetic recording (PA 505), set about in late 1945 to provide a magnetic recording tape that would overcome the objections found in the best that the Government experts (with all of the prior art presumably available to them) had been able to suggest in the O.S.R.D. Report No. 5325 published in the summer of that year. By the end of the year 1946, Camras had produced and thoroughly tested magnetic recording tapes that

solved the existing problems and laid the foundation of a substantial industry. Significant features of the tapes invented by Camras were (a) a coercive force (H_c) of well over 200 oersteds* at fields of H=1000; (b) a synthetic magnetic iron oxide coating (Fe_3O_4 or gamma Fe_2O_3) composed of acicular particles preferably having a maximum dimension of less than 1.5 microns and (c) having a high remanence (ability to retain recorded signals) of above 500 gauss.

Tapes made in accordance with the Camras invention by Minnesota Mining & Manufacturing Company (a licensee of petitioner and a co-plaintiff below) which were tested in 1947 by Station KUOM of the University of Minnesota and found satisfactory for use in radio broadcasting of music at tape speeds of 7½ inches per second, or only 2700 feet for a one hour program, where Brush tape (PA 765) (admittedly the best of the prior art) had been found completely unsuitable for that purpose (PA 764).

Tapes of the Camras invention used by Toogood in commercial recording were found to provide an economical advantage of two-to-one over prior art tapes (PA 811) despite a 40% higher price charged for the Camras tape (PA 800).

After introduction of the Camras tape by petitioner's licensee, Minnesota Mining & Manufacturing Company, in 1947 and sales during that year of $15,000—sales of the patented tape by Minnesota rose phenomenally each year until sales in 1957 were over $8,000,000 (PA 1405). Petitioner, a not for profit research corporation, was paid royalties of over $700,000 during this period (PA 1406).

Respondent, E. K. Williams & Co., Inc., produces magnetic iron oxide which it sells to respondent, Technical Tape Corporation, and other manufacturers of magnetic record-

*Claim 26 to which this petition is limited, specifies 245 [illegible] oersteds.

ing tape. This oxide and tape produced therewith embody the Camras invention including the significant features of a coercive force of above 200 oersteds, acicular particles having a maximum dimension of 1.5 microns or less and high remanence (Px. 2; Px. 3; PA 1952-3). Significantly, respondent Williams did not even submit this high coercive force magnetic oxide to makers of magnetic recording tape until after the tape of the Camras invention was on the market (PA 937; 1218-9). Respondent Williams did not produce this oxide commercially (PA 1218-9) until it had acquired full details of the Camras invention from petitioner's then licensee, National-Standard Company of Niles, Michigan (PA 2777-91).

THIS PETITION IS DIRECTED SOLELY TO CLAIM 26 IN SUIT.

This Petition is specifically and solely directed to claim 26, which is drawn to a magnetic impulse member. Being dependent upon claim 25, claims 25 and 26 must be read together:

> "25. Ferromagnetic iron oxide selected from the group consisting of a synthetic ferroso-ferric oxide, Fe_3O_4, and of a synthetic gamma ferric oxide, Fe_2O_3, adapted to form an element of a magnetic impulse record member, said iron oxide consisting essentially of uniformly small elongated crystals of less than about 1.5 microns maximum dimension having a length-to-width ratio of about 2.5 to 1 and higher, and having a cubic crystal lattice structure and a coercive force, H_c, within the range of 245 to 330 and remanence, B_r, of above about 500 gauss."
>
> "26. A magnetic impulse record member having a non-magnetic carrier and a coating adherently bonded thereto of a binder and magnetic material, said magnetic material being the ferro-magnetic iron oxide defined in claim 25 and having a B_r versus H characteris-

tic that rises most rapidly at fields between 200 and 600 oersteds and relatively slowly at fields between 0 and 200 oersteds and at fields above 600 oersteds."

In holding claim 26 to be invalid over prior art not itself disclosing the invention of the patent in suit, the Court of Appeals failed to apply the doctrine laid down in *Dewey & Almy* v. *Mimex* (C. A. 2, 1942), 124 F. 2d 986, 989:

> "No doctrine of the patent law is better established than that a prior patent or other publication to be an anticipation must bear within its four corners adequate directions for the practice of the patent invalidated. If the earlier disclosure offers no more than a starting point for further experiments, if its teaching will sometimes succeed and sometimes fail, if it does not inform the art without more how to practice the new invention, it has not correspondingly enriched the store of common knowledge, and it is not an anticipation." Citing *Seymour* v. *Osbourne*, 11 Wall. 516, 555; *Tilghman* v. *Proctor*, 102 U. S. 707, 711, 712; *Eibel Process Co.* v. *Minnesota & Ontario Paper Co.*, 261 U. S. 45, 66, and others.

The iron oxide prior art not only failed to disclose synthetic, acicular magnetic iron oxides of over 200 oersteds coercive force, it contained no suggestion that any of the magnetic iron oxides that it did disclose were adapted for use in magnetic recording tape. The Johnson patent (PA 3647-9) did not supply this suggestion since the patent showed complete satisfaction with the use in tape of the oxides therein disclosed, and these oxides, while alleged in the patent to have "high" coercive force values actually had low coercive force values (PA 2376-7) when compared to the Camras oxides.

The OSRD Report No. 5325, coming as it did chronologically after all of the prior art held to anticipate the Camras patent, by its very recognition that "the readily measurable 'effective' magnetic properties which are of practical

interest indicate a coercive force between 100 and 200 oersteds and a remanence of only a few hundred gauss," and its conclusion that magnetite powders (exemplified by the 115 to 130 coercive force BK-247) gave the best results in tape recording, contra-indicates any concept, ahead of Camras, of the use of magnetic iron oxides having coercive force values of 245 to 330 oersteds and remanence values above 500 gauss in combination with the other magnetic properties and the physical characteristics called for by claim 26.

The unobviousness of such concept is further demonstrated by the fact that although respondent Williams (and its predecessor Mepham) were suppliers of tape oxides to manufacturers of magnetic recording tape (PA 1505) and although Williams claimed that in 1942 (PA 1286-7) it had oxides (the 277 and 278 oxides) found in 1955 (PA 1359) to possess a combination of physical and magnetic properties fulfilling some if not all of the Camras criteria, respondent nevertheless continued to make its low coercive force BK-247 until forced by competition as a result of Minnesota's success with the Camras oxides and tape to go into the manufacture of an infringing oxide.

REASONS FOR GRANTING THE WRIT.

1. The decisions of the Courts below in striking down an invention which provided an outstanding advance over the best magnetic recording tape that Government-appointed experts, with all of the prior art available to them, could recommend, so emasculates our patent system as to negative the promotion of "science and the useful arts" as contemplated by Article I, Section 8, of our Constitution (App. A). The beneficial effects of our patent system were acknowledged after a critical study by the Temporary National Economic Committee when the Chairman

of that Committee stated after hearing evidence presented by the Department of Commerce:

> "(6) The fact that patents are keystones in many very important industries has been brought home to us with great emphasis. I doubt whether I had realized their significance as a primary force in the operations of the economic system. These hearings may lead more of us to give patents the attention they so certainly deserve.
>
> "(7) There was practically unanimous agreement among the witnesses that Congress, by the enactment of the Patent Law, has given this country a system far superior to that which exists in any other country."

The decisions of the Courts below were in violation of principles laid down by this Court that it is not sufficient that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used for the performance of such function.

Bates v. Coe, 98 U. S. 31, 48.
Topliff v. Topliff, 145 U. S. 156, 161.

Here the alleged anticipatory oxides* were not designed, nor adapted, nor actually used for magnetic recording.

Here, the so-called *inter partes* demonstrations of defend-

* Neither Williams and Thewlis, 1931 (PA 3005); Welo and Baudisch, 1934 (PA 2256); Kraeber & Luyken, 1936 (PA 3011); nor the Bureau of Mines Bulletin No. 425, 1941 (PA 2913) had any remote connection with magnetic recording or magnetic recording tape. The same is true of the alleged Mepham oxide, 1941-42, which was submitted for possible use in the detection of flaws in metal articles (PA 1282). These references, relied upon by the Courts below, were only considered for magnetic recording tape *after* the commercial advent of the invention of the Camras patent in suit. None of these prior art oxides embodied the combined attributes of high coercive force (above 200 oersteds), high remanence (above 500 gauss) and acicular particles, the combination of which largely accounted for the instantaneous success of the Camras magnetic recording tape.

ant all involved modifications of procedure disclosed in the respective references relied upon and those modifications were made in the light of knowledge imparted by the Camras patent in suit.

Supporting a holding of invalidity on the basis of the claim that what did not exist before is now plain to anyone;[1] on the basis that anticipation is accomplished by accidental results, not intended and not appreciated;[2] and on the basis of knowledge after the event;[3] as is implicit in the decisions of the Courts below, is in complete disregard of the guiding principles laid down by this Court.

2. In holding claim 26 invalid on the ground of anticipation or of lack of invention over the prior art, the Court of Appeals adopted a standard of invention contrary to the non-obvious subject matter test of Section 103 (App. A) and contrary to the established standards of this Court. The Court of Appeals attributed to the prior art knowledge that was first made available by Camras. It failed completely to apply the test of whether the Camras invention would have been obvious upon a comparison between the prior art and the subject matter of the Camras invention as a whole *at the time the invention was made.*

The Court of Appeals' decision holding claim 26 invalid over the prior art violates the statutory requirement that "A patent shall be presumed valid" (Sec. 282, App. A.) since, although the Court referred to prior art and portions thereof not actually cited by the Patent Office against the Camras application, such prior art was no more pertinent than that placed of record by the Patent Office against the

1. *The Barbed Wire Patent*, 143 U. S. 275, 283.
2. *Eibel Process Company* v. *Minnesota & Ontario Paper Company*, 261 U. S. 45, 66.
3. *Diamond Rubber Co.* v. *Consolidated Tire Co.*, 220 U. S. 428, 435.

Camras patent. The Johnson patent, Bureau of Mines Bulletin No. 425 and Welo & Baudisch were all overcome in the Patent Office (PA 3576). Of the further prior art relied upon by the Court, none related in the remotest way to tape or tape oxides.

Contrary to the Court's assumption, the tape made from the oxides of the Williams and Thewlis demonstration did not possess the magnetic properties called for by claim 26 (PA 1949-50).

The oxides of the Kraeber & Luyken demonstration were produced from the Camras type starting material, not from the Merck's iron hydroxide specified by Kraeber & Luyken (PA 1651-2).

Welo & Baudisch not only fails to disclose synthetic magnetic iron oxides adapted for use in magnetic tape but the oxides of the Welo & Baudisch demonstration, by comparison with the Camras oxides (see PA 2176), were not characteristically acicular (see PA 2842-3), and the tape (IOT, PA 1427) made therefrom had a coercive force value of only 210 at H=1000, well outside of the claimed range of 245-330 oersteds.

None of the tapes of the *inter partes* demonstrations was successfully tested in actual performance on a magnetic tape recorder. The results of such demonstrations should therefore have been rejected by the courts below.

A basic principle of patent law that has been long established and uniformly followed for many years was early expressed by this Court in *Bates* v. *Coe*, 98 U. S. 31, 48, as follows:

> "Where the thing patented is an entirety, consisting of a single device or combination of old elements, incapable of division or separate use, the respondent cannot escape the charge of infringement by alleging or proving that a part of the entire thing is found in one prior patent or printed publication or machine,

> and another part in another prior exhibit, and still another part in the third one, and from the three or any greater number of such exhibits draw the conclusion that the patentee is not the original and first inventor of the patented improvement."

See also this Court's decision in *The Goodyear Tire & Rubber Company, Inc., et al.* v. *Ray-O-Vac Company*, 321 U. S. 275, 279 (1944) and cases cited under Footnote 4.

The Patent Office tribunals have repeatedly and consistently followed the rule set forth in *Bates* v. *Coe*. The law is stated in numerous decisions of the Court of Customs and Patent Appeals that an application may not be rejected upon the basis of a plurality of references, none of which discloses the combination of elements, even though all taken together may show the separate elements involved, unless there was a suggestion in the prior art for doing what the applicant has done. The test as stated in *Application of Shaffer*, 229 F. 2d 476, 479 (C. C. P. A.—1956) is:

> "namely, whether the prior art suggests doing what an applicant has done. • • • (citing authorities). The foregoing cases, in our opinion, stand for the proposition that it is not enough for a valid rejection to view the prior art in retrospect once an applicant's disclosure is known. The art applied should be viewed by itself to see if it fairly disclosed doing what an applicant has done. If the art did not do so, the references may have been improperly combined."

When Congress codified the law of patents in the Patent Act of 1952, it provided in Section 103 that a patent might be invalid on the basis of prior art

> "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art • • •".

3. In its decision, here (App. B, p. 6), the Court of Appeals correctly pointed out that it could only disregard the findings of the District Court "if they are clearly erroneous". The Court of Appeals then went on to say that "factual matters in a patent case must be tried and decided by the trial judge in precisely the same manner as those of any other kind of lawsuit • • •", citing *Armour & Co.* v. *Wilson & Co.*, 274 F. 2d 143, 152, 156 (C. A. 7, 1960).

The *Armour* case, however, recognizes (pp. 152-157) that this Court in *Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Corp.* (1950), 340 U. S. 147, 148, granted certiorari, notwithstanding concurrence of a District Court and the Court of Appeals in holding claims valid, on the ground that such courts had not applied to the facts the appropriate standards of invention. That, we submit, is the situation here (except that in this case both the District and Appellate Courts held the Camras patent invalid, rather than valid).

In the instant case, the Court of Appeals for the Seventh Circuit held (App. B, p. 9) that there is credible evidence to support the Court's findings and conclusions with respect to the prior art, but it did not, we submit, either itself carefully review the documentary evidence as represented by the OSRD Report No. 5325, nor did it apply the proper standard of invention to the question of whether the prior art, when considered under the Documentary Rule, as set forth in *Kiwi Coders Corporation* v. *Acro Tool & Die Works* (7 Cir., 1957), 250 F. 2d 562, 568, anticipated the tape invention defined by claim 26 of the Camras patent.

Specifically, the proper standard of invention applicable to the combination defined by claim 26 was not applied by the District Court (PA 3554) to its Finding (59) that:

> "The record member claims of the patent claimed a combination which only united old elements with no change in the respective functions • • •".

This is not such a finding as should, in and of itself, result in a conclusion that the record member claims are invalid. A similar finding that the elements of the patented tape were old, was reached in *Minnesota Mining & Mfg. Co.* v. *International Plastic Corporation, et al.* (Jan. 9, 1947, C. C. A. 7), 159 F. 2d 554, 556, yet the patent was held valid. The standard, or the test, of invention that should be applied to the record member claim 26 is:

> Do the elements, even if themselves old, cooperate and function together to produce an article having unobviously superior performance characteristics?

In the case of the tape of claim 26, such tape not only promptly and substantially completely replaced the prior art tapes but made possible the otherwise impracticable use of magnetic tape for the economic recording at slow tape speed of radio and television programs.

Both the District Court and the Court of Appeals, in concluding that claim 26 is invalid, failed to apply the standard of invention laid down by this Court in *Expanded Metal Co.* v. *Bradford*, 214 U. S. 366, 381, wherein the Court held:

> "• • • It may be safely said that if those skilled in the mechanical arts are working in a given field and have failed after repeated efforts to discover a certain new and useful improvement, that he who first makes the discovery has done more than make the obvious improvement which would suggest itself to a mechanic skilled in the art, and is entitled to protection as an inventor. There is nothing in the prior art that suggests the combined operation of the Golding patent in suit. *It is perfectly well settled that a new combination of elements, old in themselves, but which produce a new and useful result, entitles the inventor to the protection of a patent. Loom Company* v. *Higgins*, 105 U. S. 580-591." (Emphasis added.)

4. In 1946, prior to the running of the statutory year against the Camras application, filed July 25, 1947, Camras sent some of his magnetic iron oxides to Minnesota (PA 2459) to be coated on tape and then tested by Camras. Minnesota carried out a laboratory coating of tape with such oxides and returned the coated tape to Camras (PA 2462-3). Minnesota did not itself test the coated tape; the testing was done by Camras (PA 1959-60). It held the unused oxides, subject to Camras' instructions (PA 2462-3).

There was no use or sale by Minnesota of the coated tape and there is no evidence that Minnesota tested the tape in any way. On the contrary, the evidence is clear that this tape was first tested by Camras and the tests reported back to Minnesota on August 26, 1946 (PA 1959), *after* the beginning of the statutory year.

As to whether this transaction constituted a prior public use, the Court of Appeals said the question was "not without difficulty" (App. B, p. 10), but went on to hold that it was such a prior public use as invalidated the Camras patent. In reaching this conclusion, *the Court of Appeals, like the District Court, failed to distinguish between the powder and the tape.* However, even more importantly, neither Court seems to have appreciated that there was no actual reduction to practice of either the oxides or the tape until Camras completed his testing of the tape in August 1946, *within* the statutory year.

When, as here, it is clear that there was *no use* of the tape within the statutory year, the error of the Court of Appeals in stating that the "burden fell upon plaintiffs to establish that any use was experimental" (p. 506) becomes most apparent.

Consequently, both Courts failed to apply the law laid down by this Court in *Elizabeth* v. *Pavement Company*, 97 U. S. 126, 135:

> "It would not be necessary, in such a case, that the machine should be put up and used only in the inventor's own shop or premises. He may have it put up and used in the premises of another, and the use may inure to the benefit of the owner of the establishment. Still, if used under the surveillance of the inventor, and for the purpose of enabling him to test the machine, and ascertain whether it will answer the purpose intended, and make such alterations and improvements as experience demonstrates to be necessary, it will still be a mere experimental use, and not a public use, within the meaning of the statute."

It was not until Camras had tested the tape coated by Minnesota with the Camras oxides that either the tape or the oxides were actually reduced to practice, *Stearns v. Tinker & Rasor* (C. A. 9, 1955), 220 F. 2d 49, 56. In the absence of any actual reduction to practice and of any actual sale, there can be no public use or sale within the meaning of the statutes. *Magee v. Coca Cola Company* (C. A. 7, 1956), 232 F. 2d 596, 600.

In stating, as the Court of Appeals did (p. 506), that "neither Camras nor Armour sought the aid of 3M in connection with oxides or their use on tapes," and that "there was no cooperative relationship between Armour and 3M," the Court ignored the documentary evidence (Dx. K-5, PA 2462-3; and Px. 10-A, PA 1959-60). The latter document establishes that even as of August 26, 1946, well within the statutory year, Camras was not satisfied that his invention was beyond the experimental stage for he then explicitly stated to Minnesota as follows:

> "Because of the experimental nature of the work and because we think that we will have something better in the near future, we do not feel that samples containing our trial powders should be furnished to other companies until we have had a chance to complete our own studies. Mr. Gibbons assured us that you would cooperate in this respect."

This latter document (Px. 10-A, PA 1960) also shows that the tapes made by Minnesota and tested by Camras were found by Camras to have remanences (B_r) of only 272 and 372, far below the "above about 500 gauss" required by claim 26.

Therefore, such making of tapes by Minnesota in July 1946, ahead of the beginning of statutory year, could not have been a public use of the tape defined by claim 26, even on the erroneous assumption that such use was public rather than experimental.

CONCLUSION.

The Petition should be granted:

(a) to carry into effect the intent of Section 8 of the Constitution; and

(b) to apply properly to the facts the law of this Court and of the Statutes applicable thereto.

Respectfully submitted,

CARLTON HILL,
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APPENDIX A.

Title 35 U. S. C.

§102. Conditions for patentability; novelty and loss of right to patent.

A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States.

§103. Conditions for patentability; non-obvious subject matter.

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

§282. Presumption of validity defenses.

A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it.

The Constitution of the United States.

Article I—Section 8:

The Congress shall have Power:

* * * * * *

To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

APPENDIX B.

In the United States Court of Appeals For the Seventh Circuit

Nos. 12701, 12702, 12703, 12704, 12705, 12706

SEPTEMBER TERM, 1959
APRIL SESSION, 1960

ARMOUR RESEARCH FOUNDATION, etc. and MINNESOTA MINING AND MANUFACTURING COMPANY,
Plaintiffs-Appellants and Cross-Appellees,
v.
C. K. WILLIAMS & Co., INC.,
Defendant-Appellee and Cross-Appellant.

ARMOUR RESEARCH FOUNDATION, etc.,
Plaintiff-Appellant and Cross-Appellee,
v.
TECHNICAL TAPE CORPORATION,
Defendant-Appellee and Cross-Appellant.

Appeal from the United States District Court for the Eastern District of Illinois.

July 12, 1960

Before HASTINGS, *Chief Judge*, DUFFY, *Circuit Judge*, and MERCER, *District Judge*.

DUFFY, *Circuit Judge*. Plaintiffs claim infringement of Camras Patent No. 2,694,656 issued on November 16, 1954, on an application filed July 25, 1947. The patent relates to magnetic recording, popularly known as "tape record-

ing." The first sentence of the patent states: "This invention relates to permanent magnet material and to a method of making the same." The patent explains this magnetic material is then impregnated or coated on a non-magnetic carrier to produce a magnetic impulse record member.

The Camras patent in suit was issued to Armour Research Foundation of Illinois Institute of Technology (Armour). Plaintiff Minnesota Mining & Manufacturing Company (3M) is the licensee under the patent, and has the exclusive right to grant sub-licenses. Defendant C. K. Williams & Co., Inc. (Williams) produces oxides for magnetic recording tape. Defendant Technical Tape Corporation (Technical Tape) uses those oxides in its production of magnetic recording tape.

Six claims are relied upon by plaintiffs (3, 8, 10, 14, 25 and 26). Claims 8, 10 and 14 call for methods of making "permanent magnetic material" or "oxides." Claim 3 refers to a ferromagnetic iron oxide material adapted to form an element of a magnetic impulse record member. Claim 25 refers to ferromagnetic oxide selected from a group consisting of synthetic ferrosoferric oxide and of a synthetic gamma ferric oxide, adapted to form an element of a magnetic impulse record member. Claim 26 provides: "A magnetic impulse record member having a non-magnetic carrier and a coating adherently bonded thereto of a binder and magnetic material, said magnetic material being the ferromagnetic iron oxide defined in Claim 25, and having a B_r versus H characteristic that rises most rapidly at fields between 200 and 600 oersteds and relatively slowly at fields between 0 and 200 oersteds and at fields above 600 oersteds."

It is interesting to note that there were no "record member" claims in the Camras application between November 29, 1948 when the first group of such claims was cancelled after rejection, and April 29, 1954, a period of about 5½ years.

Williams is charged with infringing claims 3, 8, 10, 14, 25, and contributory infringement of claim 26. Technical Tape is charged with infringement of claims 3, 25 and 26.

The District Court devoted four weeks to hearing and considering the extensive trial testimony. The oral testi-

mony of sixteen witnesses was heard. The deposition testimony of ten other witnesses was considered. The trial court also had the advantage of courtroom demonstrations. The District Court prepared a detailed and carefully considered opinion which, with findings of fact and conclusions of law, may be found in 170 F. Supp. 871.

The Court found 1) that to a person skilled in the art, the magnetic iron oxide and method of producing it claimed in the patent were disclosed by several prior art references; 2) that all of the claims including the record member claims, are lacking in invention, and the record member claims are not proper combination claims; and 3) that the claimed oxide was known, used and placed on sale in one instance, and the oxide was in public use in another, more than a year prior to the filing of the Camras application.

The Court dismissed the complaints in the consolidated actions. The Court also dismissed the two counterclaims of defendant Williams. One was for a declaratory judgment holding the patent invalid and not infringed. Although this counterclaim was dismissed, it was, in effect, sustained by the Court's holding of invalidity of the patent in suit. The second counterclaim alleged misuse of the patent and asserted violation of the antitrust laws. Williams has cross-appealed from the dismissal of its counterclaims, and both defendants cross-appealed from a part of the judgment offsetting costs and failing to award attorneys' fees.

The art of magnetic recording is based upon the fact that a magnetic member (magnetic impulse record member) may be varyingly magnetized to record a varying electric current signal, such as from a microphone, which is sent through the winding of an electromagnet when said member is moved across a pole of the magnet. For playback, the member so magnetized is, in turn, moved across the pole of an electromagnet to generate a varying electric current in the winding thereof, so the signal originally recorded may be reproduced. In order to suppress background noise and to produce a better response, a bias current is ordinarily employed to impress a bias field on the signal field.[1]

[1] Bias is a magnetic field added to the magnetic field of the signal being recorded, in order to obtain increased fidelity in recording.

Initially, commercial magnetic recorders in the United States used wire as a recording medium. As early as the 1930's magnetic recorders were used in Germany, where tape was used as the recording medium. The tape was coated or impregnated with magnetic iron oxide. Immediately following World War II, the Brush Development Company of Cleveland, started production of a magnetic recorder known as the "Soundmirror." It used a tape with a low coercive force magnetic oxide.

While the work on the Soundmirror was going on, Indiana Steel Products Company produced a tape recorder using a tape with high coercive force (about 250 oersteds) magnetic powder having particle sizes in the one micron range. After examining the Indiana Tape Recorder, Armour negotiated in an effort to obtain exclusive rights to the Indiana machine and medium. Indiana refused to commit itself to an exclusive arrangement. After the introduction of the *Brush* tape recorder, Armour set out to make a tape recorder of its own that "would use the same basic ideas as are now employed in our wire recorders" and planned to bring Indiana under an Armour's license agreement.

In 1945, Camras began extensive experimentation which plaintiffs claim led to the invention of the patent in suit. Plaintiffs say the patent in suit discloses and claims an improved magnetic recording tape; improved magnetic iron oxides which constitute the magnetic material of the tape; and methods assuring the production of such oxides embodying those magnetic and physical characteristics found by Camras to be necessary to achieve the improvements named.

All the twenty-six claims of the patent have one characteristic in common. They call for a "synthetic" magnetic iron oxide powder of the well-known classes of ferrosoferric oxide, Fe_3O_4, and gamma ferric oxide, Fe_2O_3, which is characterized as having a coercive force of at least 200 oersteds.[2] Although plaintiffs several times emphasized that the iron oxide powder was synthetic, the term "synthetic" was not incorporated into the claims

[2] Coercive force, Hc, characterizes the resistance of a magnet to demagnetization. In magnetic recording, it is normal to use a saturation field of 1000 oersteds' intensity. The term "oersted" indicates a modern unit of magnetic field strength applicable to magnetic fields in free space such as air. This unit was formerly called the gauss.

until more than four years after the date of the patent application. The word "synthetic" is nowhere found in the specification.

Plaintiffs place great stress on what they call the "criteria" of the patent. They say that after Camras had made and tested a large number of tapes, certain magnetic criteria were developed which, combined with the physical criteria as to particle, size and shapes of the oxides enabled Camras to show how to make a superior magnetic recording tape capable of faithfully recording and reproducing high frequency notes at slower tape speeds than previously used.

Plaintiffs assert important criteria of the patent are: 1) a relatively high coercive force of 200 to 550 oersteds; 2) gentle slope of the lower bend of the B_r versus H curve[3] to a point about 250 gauss where the curve begins to rise rapidly; 3) a rapid rise from 250 to 600 oersteds; 4) a high remanence of above 500 gauss, and a B_{fm}/B_r ratio of less than 3 to 1; 5) a synthetic material comprised preferably of particles of less than 1.5 microns and not more than 6 microns in maximum dimension and consisting of acicular or elongated particles.

The patent discloses the close inter-relationship between the oxides and the recording mechanism. The District Court stated this situation very well in the following language: "There is practically an inseparable tie between the recording machine and the media to be used therewith. A magnetic recorder is not complete nor operative to give its intended performance until the mechanism is supplied with media having the same form and magnetic characteristics of the media it was designed to use. The machine is tailored to use a recording media having particular characteristics. The media are manufactured to provide those characteristics."

Plaintiffs claim that after the commercial introduction of the Camras tape by 3M in 1947, it proved a great commercial success and supplanted tapes previously used. The testimony showed that by 1957, 3M sales of the tape covered by the patent exceeded $8,000,000 in value.

[3] This curve represents the residual or remaining magnetic characteristics left in the sample after the applied field has been reduced to zero.

Many of the findings of the District Court on the question of validity were, in large part, based on testimony before the Court by expert, technical and fact witnesses. The tests and demonstrations gave the Court a keen insight as to the claims and contentions of the parties. Under such circumstances, we cannot consider the issues as though we were a *nisi prius* court. We have, many times, pointed out that under such circumstances, Rule 52(a) Federal Rules of Civil Procedure is applicable, and we can only disregard such findings if they are clearly erroneous. *Hazeltine Research, Inc.* v. *Admiral Corp.*, 7 Cir., 183 F.2d 953, 954-955; *Armour & Co.* v. *Wilson & Co.*, 7 Cir., 274 F.2d 143, 156. We have frequently reminded the bar that factual matters in a patent case must be tried and decided by the trial judge in precisely the same manner as those of any other kind of a lawsuit, and the functions of this court of review are no different than they are in any other kind of a case. See *Armour & Co.* v. *Wilson & Co.*, *supra*, at pages 152, 156.

From the prior work of others, Camras knew or is charged with knowing, the usefulness in recording media, of high coercive force qualities. He knew similarly the desirability of using in magnetic tape, magnetic iron oxide powders of very small and uniform particle size and high coercive force, and of using elongated powder particles including acicular magnetic iron oxides. Camras also had constructive if not actual notice of the various magnetic iron oxides including synthetic materials and methods of preparation as had been disclosed in literature pertaining to magnetic iron oxide.

The same prior publications disclosed that magnetic iron oxides showing the highest values of coercive force are obtained by the chemical reduction of ordinary ferric oxides (known as non-magnetic red iron oxide, also called alpha ferric oxide) to ferrosoferric oxides (black iron oxide, Fe_3O_4, also called magnetite) at elevated temperatures, and that the ferrosoferric oxides so obtained show coercive force values of 200 oersteds or more by magnetic measurement.

These publications also disclosed that ferric oxide could be obtained by dehydrating alpha ferric oxide monohydrate, $Fe_2O_3H_2O$. That material inherently forms as fine

acicular crystalline particles of less than 2 microns in size. These publications also described process conditions which produce oxides of high coercive force. *Inter partes* demonstrations were carried out at Easton, Pennsylvania, based on prior publications including the teachings of Williams and Thewlis. The trial court found that such demonstrations produced oxides identical in properties claimed by Camras as his product invention.

Another prior publication was published in Germany in 1936, and is known as the Kraeber & Luyken publication. It discloses methods by which iron oxides may be reduced and oxidized in order to provide certain magnetic properties. The District Court found that at the *inter partes* demonstrations at Easton, an oxide identical to Camras' oxide was produced by following the disclosures of this publication.

The trial court discussed United States Department of Interior, Bureau of Mines' Bulletin 425. This Bulletin dealt with magnetic separation of ores, and at page 136, teaches the effect of heat treatment on iron oxides. The trial court found the teachings in this article disclosed to one skilled in the art that in order to obtain a high coercive force oxide, reduction temperatures of between 220° to 550° C. must be followed, and that over-heating will destroy these magnetic properties.

The District Court pointed out that although the Patent Examiner referred to pages 88 to 95 of Bulletin 425, apparently no consideration was given to page 136 where the effect of heat treatment on the iron oxides was disclosed. The Court found the Williams and Thewlis, the Kraeber and Luyken, and the Bureau of Mines' publications (to the extent indicated), anticipated the oxides claimed by Camras as his invention, and that these publications were not cited nor considered by the Patent Office as prior art publications.

Welo and Baudisch were prior workers in the field. Their article was published in 1934, and disclosed a method whereby synthetic magnetite may be obtained by the reduction of gamma monohydrate and alpha monohydrate. Plaintiffs seek to challenge the District Court's reliance upon this reference by saying the oxide particles were not

shown to be "characteristically" acicular. An inspection discloses that many of the particles of Welo and Baudisch oxides are acicular. However, whether the oxides are predominantly acicular would seem to be immaterial. The use of oxides composed of acicular particles on recording tape was old. Camras admitted that the acicular form was not critical. This is also demonstrated by the fact that some of the claims in suit, such as 4 and 13, do not specify the shape of the particles at all.

The decision of the District Court on invalidity was based, in part, on the Johnson patent (British Patent No. 466,023) dated November 18, 1936. This patent is entitled "Improvement in the Manufacture and Production of Sound Record Carriers." The patent taught the use of synthetic magnetic iron oxides both Fe_3O_4 and gamma Fe_2O_3 in fine particle sizes of 1 micron or less, including synthetic oxides of acicular shape as a magnetic recording material on or in a non-magnetic carrier (tape). The patent stated that such an oxide having a favorable remanence and high coercive force was especially suited for use in sound recordings to obtain faithful reproductions of speech and music at reduced tape speeds.

The Johnson patent did not state numerical values of magnetic property measurements, nor did it disclose any magnetic oxides or methods of preparing same. Instead, it referred in general terms to certain methods of preparing suitable oxides and stated such methods "are known *per se*." Workers were thus referred to the magnetic iron oxide art.

Plaintiffs argued that Johnson's reference to high coercive force meant force less than 200 oersteds. However, by following the methods of preparing oxides which were "known *per se*," magnetic oxides showing coercive force values of 200 oersteds and higher could be obtained by anyone who wanted them.

The OSRD report No. 5325 of June 30, 1945, had described basic principles of the magnetic recording process, and had referred to the tendency of high coercive force in the recording media to favor reproduction of high frequency signals. It described the development of coated wire media showing coercive force measurements of 300

oersteds. It also mentioned that better results had been obtained with flexible tapes using synthetic magnetic iron oxides then available commercially, and which had particle sizes of less than 1 micron, and coercive force measurements of 100 to 200 oersteds.

We think and so hold, that the oxide and method claims of the Camras patent are clearly invalid over the prior art hereinbefore discussed. The same is likewise true of the record member claims especially in view of Johnson and the teachings of OSRD report 5325. In our view, the claims at issue of the patent in suit were fully anticipated by a number of the prior publications, and are completely lacking in invention over others. We hold there is credible evidence to support the Court's findings and conclusions with respect to the prior art.

The trial court held that a certain transaction hereinafter narrated which occurred in April, 1946, and in the period immediately following, amounted to a prior public use of the oxides in suit, and was a statutory bar to the validity of the patent.[4]

April, 1946, was more than a year prior to the filing date of the Camras patent. In that month, 3M disclosed to Armour a magnetic oxide tape and asked Armour if it was interested in the use of magnetic tape for recording. Armour advised 3M it had experimented with tapes using oxides having a considerably higher coercive force than those shown to Armour by 3M. A sample of Armour's tape was given to 3M which caused tests to be made of the oxide as coated on the tape. Thereafter, 3M requested and Armour furnished ten pounds of oxides for the use by 3M in coating tapes. This material was received by 3M prior to July 12, 1946, and was used in coating tapes. The trial court found as a fact that the oxides furnished by Armour to 3M were the same oxides later patented by Camras.

Plaintiffs argue that this transaction was merely an experimental use as contrasted with a public use. Plain-

[4] Title 35 U.S.C. §102 provides: "A person shall be entitled to a patent unless * * * (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States."

tiffs argue Camras did not have suitable equipment for making rolls of tape and 3M made some small sample rolls which it sent to Camras for testing. Plaintiffs point out no money changed hands and urge that no commercial transaction was involved.

The question is not without difficulty. While a public use more than a year prior to the application date would defeat a patent, an experimental use would not. Whether the use by 3M was experimental, poses a very close question. It is apparent that the use by 3M of the oxides did have some aspects of an experimental use. In his testimony, Camras described the tapes as "experimental samples." None of the tapes were actually sold. The unused oxide was returned.

In *Elizabeth* v. *Pavement Co.*, 97 U.S. 126, the use was held to be experimental and not an invalidating public use. There, the invention related to highway pavement. The pavement constructed under the patent was installed in a toll road and used publicly for a period of six years. The Supreme Court held it was an experimental use emphasizing the owner of the patent actually controlled his invention; that he built the road at his own expense; and that his day-to-day conduct indicated he intended to apply for a patent when he was satisfied that no further improvements were necessary.

However, in support of the Court's findings, the record before us discloses that neither Camras nor Armour sought the aid of 3M in connection with oxides or their use on tapes. In April of 1946 there was no cooperative relationship between Armour and 3M. The latter was already interested in the magnetic tape business, and it made its contact with Armour in furtherance of its own commercial interest. Armour built a kiln to produce the oxides in larger quantities. While plaintiff scoffs at the meager ten pounds of oxide sent to 3M, the record discloses that such an amount was sufficient to coat ninety 1200-foot reels of ¼ inch tape.

The unrestricted deliveries and the use of the oxides by 3M having been shown as well as the shipment of the oxides to Du Pont Company on June 20, 1946, the burden fell upon plaintiffs to establish that any use made of such

oxides was experimental. We hold there is sufficient credible evidence in the record to support the trial court's findings that the use made by 3M of the oxides was a public use, and the conclusions drawn by the trial court on that point were correct.

As early as December, 1941, George S. Mepham Corporation had produced synthetic oxides. They were not, at that time, used in making magnetic recording media. These oxides were numbered MTR-1 and MTR-12, and were subsequently re-designated 277 and 278, respectively. These oxides were tested in 1942 by Magnaflux Corporation, and found to be highly magnetic and suitable for their purpose. However, they were not then used because of the cost involved. Mepham retained the oxides and in 1947 forwarded these oxides with others to Brush Development Company for use in recording media.

Subsequent tests in 1955 disclosed that MTR-1 (277) had an H_c of 330 oersteds at a field of 1000 oersteds, B_{rm}/B_r ratio of less than 2 to 1, and a rapid rise from 300 to 400 oersteds. Oxide MTR-12 (278) had a coercive force, H_c, of 240 oersteds at a field of 1000 oersteds, a B_{rm}/B_r of less than 3 to 1, and a rapid rise between 300 and 400 oersteds. The particle size of both materials was found to be less than 1 micron in maximum dimension and to be acicular in shape. The trial court found the activities of Mepham constituted public use as well as an offer of sale. There is support in the record for such findings.

Although the Court found only an offer of sale, we think such finding brings the case at bar within the decisions of this Court in *Wende* v. *Horine*, 225 Fed. 501, 505, and *Magee* v. *Coca-Cola Company*, 232 F.2d 596, 600, in which it was held that the statute does not require a "sale" but only a "placing on sale."

There is ample support in the record for the findings of the trial court as to the activities of Mepham, and we hold that the Mepham oxides were an anticipation of the tape oxide claims in the patent in suit.

The trial court discussed other bases for its decision of invalidity of the patent in suit, including the record

member claims thereof. It would unduly prolong this already lengthy opinion to say more than that the findings of the trial court with respect thereto are supported by the evidence, and we can find no error in the conclusions drawn.

With its answer, Williams filed a first and a second counterclaim. The latter was later thrice amended. The first counterclaim included a prayer for a declaratory judgment which was, in effect, sustained by the Court holding the patent in suit to be invalid. It also incorporated the claim that Armour and 3M had obtained a sweeping monopoly as to magnetic recording tape and magnetic iron oxide, and alleged plaintiffs' conduct created an "*in terroreum*" in the trade. This latter charge was not pressed on this appeal.

The second counterclaim alleges a violation by Armour and 3M of the antitrust laws of the United States, particularly §§ 1 and 2 of the Sherman Antitrust Act. Later, an amended second counterclaim was filed.

It is alleged in the amended second counterclaim that 3M dominates the magnetic recording tape industry, being the largest producer of such tape in the world. It is also alleged the magnetic recording industry has grown from infancy at the time of World War II to one of the major industries in this country. The counterclaim describes Armour's policy of issuing restricted licenses after its agreement with 3M, and which it is claimed has resulted in a situation whereby 3M is now the only Armour licensee engaged in the business of manufacturing magnetic tape in the United States.

The amended second counterclaim alleges an agreement between Armour and 3M in 1947 whereby 3M would file a patent application with the idea that an interference would be declared in the patent office with the application for the patent in suit. In a memorandum by 3M it was stated: "If interference develops it could be handled on a perfectly friendly basis."

3M did file its patent application on February 16, 1948 in the names of Smith, Wetzel and Herr who swore they had invented both the black and gamma oxides of

high coercive force and "record members" containing them. Two substitute applications, one for the black oxide, and one for the gamma oxide, were filed in 1950 with similar oaths. The trial court found Smith never believed that he had invented either oxide. The interference proceeding, which was in the nature of shadow boxing, was carried on for nearly two years before being terminated privately by 3M's concessions of priorities to Camras. It was at this time Armour agreed to restraints upon its future conduct of its licensing system.

We are handicapped in considering the second amended counterclaim by the brief manner in which the trial court referred to the issues raised thereby. The trial court's opinion, findings and conclusions in this case occupy forty-one pages of the printed appendix. All issues pertaining to the validity of the patent were considered in great detail, and we have approved the trial court's findings and conclusions in reference thereto. By comparison, the reference to the counterclaim issues is contained in a few short paragraphs.

It is a practical impossibility for us to carefully examine the more than five thousand pages of the printed appendices to pick out testimony and evidence that might pertain to the issues raised by the counterclaims. We have considered the possibility of sending the case back to the trial court for additional findings on such issues. However, we finally have determined that there are sufficient findings and conclusions before us so that we can now pass upon such issues.

The trial court found that there has been no price-fixing or patent-pooling or cross-licensing; also there has been no use of a patent or patents to control the manufacture, use or sale of unpatented articles or materials, nor has there been any attempt to force others to buy only the patented products. The Court also found there has been no joint control of any licensing program between plaintiffs Armour and 3M.

There was considerable evidence which would have justified contrary findings, but again, we must accept such findings unless clearly erroneous, and there is in the record before us credible evidence to support the

Court's findings on these issues. Certainly, we cannot say that such findings are clearly erroneous.

The same holds true of the Court's finding that the defendants did not prove the alleged misuse of the patent in suit. We hold the trial court was correct in concluding that misuse of the patent in suit and violation of the anti-trust laws by plaintiffs were not sufficiently established by the proof.

A question has been raised as to the provision in the judgment referring to costs. Although we think defendants should have been awarded costs without any offsets, we defer to the trial court in that respect. However, we invite the trial court's attention to the provision in the judgment whereby Technical Tape's costs are to be offset by costs incurred by plaintiffs in defending the counterclaims. Inasmuch as Technical Tape did not interpose a counterclaim, its costs should not be offset.

Judgment

AFFIRMED.

A true Copy:

Teste:

.....

Clerk of the United States Court of Appeals for the Seventh Circuit.

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APPENDIX C.

IN THE UNITED STATES COURT OF APPEALS

For the Seventh Circuit.

September Term, 1959—April Session, 1960.
Nos. 12701, 12702, 12703, 12704, 12705, 12706.

ARMOUR RESEARCH FOUNDATION, etc., and MINNESOTA MINING AND MANUFACTURING COMPANY,
Plaintiffs-Appellants and Cross-Appellees,
vs.
C. K. WILLIAMS & CO., INC.,
Defendant-Appellee and Cross-Appellant.

ARMOUR RESEARCH FOUNDATION, etc.,
Plaintiff-Appellant and Cross-Appellee,
vs.
TECHNICAL TAPE CORPORATION,
Defendant-Appellee and Cross-Appellant.

August 30, 1960.

OPINION ON PETITION FOR REHEARING.

PER CURIAM. We have authorized the entry of an order denying the petition for rehearing filed by plaintiff Armour and also denying the petition for rehearing filed by defendant Williams.

We invite the attention of the District Court to the matter of costs in that Court. We stated in our opinion that defendants should have been awarded costs without offsets, but we would defer to the trial court in that respect.

On the petition for rehearing, Williams points out that paragraph 9 of the judgment seems to authorize an offsetting of plaintiffs' costs in defending the first counterclaim. This was for a declaratory judgment of invalidity and non-infringement. Although in form dismissed, the counterclaim was in effect sustained by the Court's holding of invalidity of the patent in suit.

If a differentiation can be made as to costs in defending the first and second counterclaims, it is clear there should be no offset as to the defense of the first counterclaim.

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FILED
DEC 27 1960
JAMES R. BROWNING, Clerk

IN THE

Supreme Court of the United States

OCTOBER TERM, 1960.

No. 553

ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY,
Petitioner,

vs.

C. K. WILLIAMS & CO., INC., ET AL.,
Respondents.

BRIEF FOR C. K. WILLIAMS & CO., INC. IN ANSWER TO PETITION OF ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY FOR WRIT OF CERTIORARI.

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ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY,

Petitioner,

vs.

C. K. WILLIAMS & CO., INC., ET AL.,

Respondents.

BRIEF FOR C. K. WILLIAMS & CO., INC. (WILLIAMS) IN ANSWER TO THE PETITION OF ARMOUR RESEARCH FOUNDATION OF ILLINOIS INSTITUTE OF TECHNOLOGY (ARMOUR) FOR WRIT OF CERTIORARI.

Introduction.

So far as the issues presented by Armour's petition are concerned, this is an ordinary patent infringement action in which both the District Court and the Court of Appeals, in extensive and painstaking opinions, held the patent in suit clearly invalid for a number of different reasons, all grounded essentially on the facts of the particular case.*

* The patent has now also been held invalid for like reasons in an opinion rendered December 19, 1960, by the United States District Court for the Southern District of New York in Civil Action 101-140, *Audio Devices, Inc.* v. *Minnesota Mining & Manufacturing Company and Armour Research Foundation of Illinois Institute of Technology.*

The petition fails to present any *legal question* differentiating the case from the ordinary run of patent litigation. No important issue of law is tendered, the resolution of which would clarify the patent law applicable generally or establish any new or guiding principle.

Instead, the petition is based upon a version of the particular facts which is not supported by the evidence and is clearly in conflict with the facts found by both courts below upon thorough consideration of the evidence relating to this phase of the case.

The absence of any plausible ground for granting the writ sought by Armour was evidently recognized by its co-plaintiff, Minnesota Mining & Manufacturing Company (3M), which significantly failed to join in the petition.

THE GROUNDS OF THE CONCURRING DECISIONS OF THE COURTS BELOW ON THE PATENT PHASE OF THE CASE.

The patent in suit was held invalid, not on just one ground but on a number of different grounds, each sufficient in and of itself to sustain the conclusion which was reached. They may be enumerated as follows:

1. Both the oxide claims and the "record member" claims (including claim 26 on which petitioner "specifically and solely" relies in its petition) were held to be anticipated by the Johnson British patent 466,023 (PA 3647) when its teachings are considered in connection with the known magnetic oxide art referred to therein (D. C. Opinion, PA 3520-21 and 3527, C. A. Opinion, p. 8, App. B to petition).

2. The oxide claims were held to be anticipated by each of the following additional references: (a) Williams and Thewlis article (PA 3005), (b) Kraeber and Luyken article (PA 3011) and (c) vital parts of

the Bureau of Mines Bulletin (PA 2944 *et seq.*), none of which was cited or considered by the Patent Office during the prosecution of the application for the patent in suit, and against which there was therefore no presumption of validity (D. C. Op. PA 3522-26; C. A. Op., p. 7). (While claim 26 is a so-called record member claim its alleged novelty must depend on the oxide since a non-magnetic carrier of the type disclosed, with a coating of magnetic material adherently bonded thereto, was admittedly old and no novelty could possibly be predicated on the inclusion of the carrier in the claim, as will be further shown later herein.)

3. It was further held that the patent was wholly lacking in invention over the above and other publications, including the OSRD Report (PA 475-80, PA 2256) (D. C. Op., PA 3527-8; C. A. Op., pp. 7-8).

4. The oxide claims (with which the record member claims must fall for the reason above mentioned) were held invalid because of prior knowledge, use and offer for sale of oxides produced by the George S. Mepham Corporation (D. C. Op., PA 3531-33; C. A. Op., p. 11).

5. The patented oxides and their use as magnetic tape recording media were also held to have been in public use by 3M more than one year prior to the application for the Camras patent and the patent was held invalid for this additional reason (D. C. Op., PA 3533-34; C. A. Op., pp. 9-11).

6. The record member claims (including of course claim 26, the only one relied upon in the petition) were further held invalid as claiming "a combination which only united old elements with no change in the respective functions" thereof and as involving nothing more than "the substitution of one material for another

of the same class in a structure of which the elements, the purpose, the nature and the mode of use were all old" (D. C. Findings 58 and 59, PA 3554, held by the Court of Appeals to be correct, C. A. Op., pp. 11-12).

DISCUSSION OF ABOVE GROUNDS OF INVALIDITY.

In order that the concurring findings of anticipation and lack of invention by the Courts below may be considered in proper perspective, attention is first called to the discussion by the District Court of the Johnson British patent (PA 3520-22) and to the following finding with respect thereto at PA 3527):

> "The Court further finds that the Johnson British patent clearly teaches the use of magnetic iron oxides, both Fe_3O_4 and gamma Fe_2O_3, in a finely divided state and of a small particle size and of a high coercive force to be especially suited for use as a magnetic recording media. Although the examples of the method of preparing the oxide contained in the Johnson patent do not disclose the exact method of preparing the oxide claimed by Camras as his invention, yet by following the Johnson teachings and referring, as the patent teaches, to the magnetic oxide art as known and disclosed in prior publications, the Camras oxide is anticipated, as is the use of these oxides for magnetic recording members."

Regarding petitioner's contention that the reference in the Johnson patent to high coercive force did not contemplate a coercive force of 200 oersteds or more, the following statement by the Court of Appeals (Op. p. 8) is pertinent:

> "Plaintiffs argued that Johnson's reference to high coercive force meant force less than 200 oersteds. However, by following the methods of preparing oxides which were 'known *per se*,' magnetic oxides showing coercive force values of 200 oersteds and higher could be obtained by anyone who wanted them."

In this connection it is also significant that the commercial use of media (either wire or tape) having coercive force of over 200 oersteds and the advantages of high coercive force for faithful reproduction of sound at high frequencies were well known prior to Camras' alleged invention.

As noted in Judge Juergens' background account of magnetic recording (PA 3518-19), the Germans first developed and successfully used magnetic recorders using non-magnetic tape coated with magnetic iron oxides as the recording media. Until after World War II magnetic recording practice in the United States was limited to machines making use of wire or of metal tape. Armour's work before 1946, and the work of magnetic recorder manufacturers then active in this country, who were Armour's licensees, was concerned with wire recorders in which wire media showing coercive force values of over 250 oersteds had been used.

As stated in the opinion (PA 3519) and not controverted by plaintiffs, the Brush Development Company's tape recorder called the "Soundmirror" (the first American machine for home use) was placed on the market after conclusion of the War. It used a low coercive force magnetic oxide but was a slow speed machine, $7\frac{1}{2}$ inches per second, which became the standard speed of American tape recorders. While work on the Soundmirror was going on, Indiana Steel Products Co. produced a tape recorder using a tape made with high coercive force (around 250 oersteds) magnetic powder having particle sizes in the 1 micron range. The powder was not iron oxide but the use of such oxides as recording media was well known from the German practice, the Johnson patent and other disclosures.

In September 1945 (prior to the alleged invention of the patent in suit) Indiana brought its recorder to plain-

tiff Armour, seeking assistance in marketing it (DA 535-8). Camras studied and tested this recorder and thus of course knew that the magnetic material of the tape which it employed had a coercive force of about 250 oersteds and a particle size of less than 1 micron (PA 704-6).

The procurement of a magnetic iron oxide having a coercive force already known to be desirable for magnetic recording media was therefore merely a matter of reading and following instructions in available magnetic oxide literature, which, as the Courts below held, required no invention. *Sinclair & Carroll* v. *Interchemical*, 325 U. S. 327, 330, 335 (1945); *Johnson Laboratories* v. *Meissner* 98 F. 2d 937 (CA 7, 1938).

As the District Court found (Finding 29), "Camras obtained specified starting materials which were commercially available, put them in an oven and reduced them as the literature specified. He then tested them by Armour's way of testing" (a special technique originally developed for comparing permanent magnet properties of recording wires (DA 423)), "and found that they possessed the properties later claimed to be his invention" (PA 354-9, 1787-93).

Furthermore, as Camras himself admitted, there was nothing critical about the "borderline" of 200 oersteds. He testified, "I think the reason for the 200 is that you are required to specify some number in the claims or whatever * * * and there is a number which we found to be a sort of a good borderline number * * * " (PA 607).

The other limitations in the claims are of no significance as they are not only lacking in novelty but for the most part are mere incidents or concomitants of a magnetic oxide having a coercive force of over 200 oersteds as we shall show in the analysis of claim 26 hereinafter contained.

Regarding the other references which the Courts held anticipated, or left no room for invention in, the Camras patent, they are fully discussed in the opinion of the District Court and to some extent in the opinion of the Court of Appeals. We will therefore not lengthen this brief by discussing them in detail here. Not only were they fully and carefully considered by both Courts but, as the Court of Appeals said (p. 6):

> "Many of the findings of the District Court on the question of validity were, in large part, based on testimony before the Court by expert, technical and fact witnesses. The tests and demonstrations gave the Court a keen insight as to the claims and contentions of the parties."

The attacks on this evidence by the plaintiffs below were strained and lacking in substance. For example, with respect to the Kraeber and Luyken reference plaintiffs virtually admitted that by following it at the *inter partes* demonstrations the oxides claimed by Camras were produced but contended that the specific starting material (Merck's iron hydroxide) was not used. The Court specifically found on the evidence (PA 3523-4) that the starting material which was used "corresponds to the Merck iron hydroxide" in all essential respects (which were enumerated) and that the use of the substitute material was justified because the Merck material was not available. Certainly such a finding by the trial court should be accepted.

With regard to the Welo & Baudisch article, practically the only attack made upon it as a reference was that the particles of the oxide produced by following it were not "characteristically acicular" (elongated). This alleged distinction was insignificant and plaintiffs' contention was fully answered by the Court of Appeals (pp. 7-8) as follows:

"Plaintiffs seek to challenge the District Court's reliance upon this reference by saying the oxide particles were not shown to be 'characteristically' acicular. An inspection discloses that many of the particles of Welo and Baudisch oxides are acicular. However, whether the oxides are predominantly acicular would seem to be immaterial. The use of oxides composed of acicular particles on recording tape was old. Camras admitted that the acicular form was not critical. This is also demonstrated by the fact that some of the claims in suit, such as 4 and 13, do not specify the shape of the particles at all."

The admission to which the Court referred was as follows (PA 690):

"Q. * * * Is it necessary to get the performance of the oxides made according to your alleged invention that they be elongated crystals or particles, yes or no?

A. No."

In connection with this Welo and Baudisch reference the patent solicitors for Camras, an Armour employee, made representations and demonstrations to the Patent Office (by which they secured allowance of the patent) which, to say the least, were highly misleading, as indicated by the following lenient statement by the District Court (PA 3543):

"After having heard the testimony, reviewing the record and the exhibits, Camras either was not, at the time of the application, the expert on the preparation of iron oxides that he wanted the Patent Office to believe, or he did in fact materially misrepresent the prior art in the oxide field, for it appears that the prior art in this field showed methods by which high coercive force values could be obtained in both natural and synthetic oxides by starting with either gamma or alpha iron oxides. Although representations were made to the Patent Examiner by Camras which in the light of the evidence presented to the Court were and are incorrect, the Court cannot say that Camras

perpetrated a fraud on the Patent Office or that he was guilty of *wilful* misrepresentation of material facts."

The plaintiffs, Armour and 3M, also used interference proceedings in the Patent Office and representations made by them therein as a part of their long campaign to overcome the Examiner's rejections and thus secure the patent in suit. The Court of Appeals commented adversely on these proceedings, characterizing them as "in the nature of shadow boxing" (C.A. Op. pp. 12-13).

Clearly the Courts below were fully justified on the facts before them in finding the patent to be anticipated by, and lacking in invention over, the prior art; and we submit that this is certainly not a matter with which this Court should be concerned.

Likewise the decisions respecting the Mepham and 3M prior uses were based on careful and specific determinations of fact with which only the parties to this litigation are concerned. We submit that it is exceedingly clear that these issues present nothing calling for the exercise by this high Court of its certiorari jurisdiction.

ANALYSIS OF CLAIM 26.

Armour's petition emphasizes that it "is directed solely to claim 26 in suit."

This claim was doubtless selected because it *looks* more detailed and specific than the other claims and it was therefore presumably felt that a better showing could be made as to an alleged lack of literal anticipation of all the words, numbers and symbols contained in it. Actually it is not materially different in substance from the other claims. What plaintiffs had to rely on in the last analysis was that Camras had invented a magnetic iron oxide recording tape having a coercive force of over 200 oersteds. Their posi-

tion was found to be wholly untenable. Some of the claims specify a coercive force range of between 200 oersteds and 550 oersteds. Claim 25, which is incorporated in claim 26 by reference, specifies a range of 245 to 330 oersteds, but there was no evidence that there was anything critical or novel about this narrow range. In fact, as above pointed out, Camras admitted that the number 200 was not critical and was picked only as "sort of a good borderline number" because "you are required to specify some number in the claims."

Furthermore, the evidence shows that the numerical magnetic property values recited in the claims have no definitive meaning in the absence of clear specifications of the conditions and standards of measurement of these values, including details of the test specimens and the magnetic field strength used for tests to measure them (DA 78, 103-7, 112-8), and that Camras not only failed to set forth these conditions and standards but gave in his patent misleading information that could not be followed to reproduce the property values of the specimens listed in it (PA 605-9, 823-8, 843-4, 861-9, 1418-20).

The claim calls for a "magnetic impulse record member having a non-magnetic carrier and a coating adherently bonded thereto of a binder and magnetic material." This of course was old in all magnetic tape work.

The magnetic material is described as "the ferro-magnetic iron oxide defined in claim 25." Claim 25 defines an oxide which is no more novel than that defined in the other claims, although it speaks of "elongated crystals" rather than acicular particles and specifies, without mention of the "ratio of Bfm to Br" included in most of the claims, that the oxide has a "remanence, Br, of above about 500 gauss." Such a remanence quality was shown in the literature (e.g. PA 2942) and was inherent in the products of prior art processes.

Further, there is no generally accepted method of determining in gauss units the remanence value of a magnetic iron oxide (Admission, PA 452 (h), 478 (h)), and since this value varies with the concentration of oxide in the test specimen and with the magnetic field strength applied in tests to measure it (DA 112, 117-8), the claim in this respect merely dresses up an inherent property of old oxides in obscure terms to make the claim seem to be different where in fact everything it tries to engross was quite old.

For these reasons and because of the lack of novelty and criticality in the specified coercive force range there is no patentable novelty in the oxide of claim 25.

Claim 26 then specifies that the magnetic material has a "Br versus H characteristic that rises most rapidly at fields between 200 and 500 oersteds." Like the Bfm to Br ratio, this so-called "rapid rise" characteristic is not only not new but is inherent in high coercive force oxides produced by known reduction processes and thus adds nothing to the claim. In all of the numerous instances in the evidence of measurements of such oxides for this characteristic, the record shows that the Br-H curves of the oxides rose most rapidly within the range of 200 to 600 oersteds. See, for example, plaintiffs' admissions at PA 344, 468, 358, 470; 375, 471 and 385, 472.

Moreover, the record shows that this "rapid rise" characteristic was first asserted as a feature of the alleged invention in an amendment to the Camras application made in 1954 after plaintiffs had settled their sham interferences, when they were prosecuting the Camras application in joint efforts to cover in it, literally, every "good recording tape" that "could be made" (DA 642-3), in which amendment it was represented, concerning charts of the Welo & Baudisch reference, that "while it cannot be directly ascertained from the charts themselves, it is quite evident that the iron oxides of the charts did not have the Br-H char-

acteristic" (PA 2416). Yet 3M's manager and physicist, Wetzel, who was helping in the Camras prosecution (DA 642), admitted on cross-examination at the trial that from chart 4 of the reference it could be seen directly that the peak permeability of the oxide occurred in the range between 200 and 600 oersteds, indeed "at about 480 oersteds," and that the maximum rate of rise of the Br-H curve of any given oxide should always "come pretty close" to its peak permeability (PA 1082-4).

Claim 26 therefore is merely more complex than others in its designations of old things; it contains no more substantive novelty than the other claims.

In addition, it is invalid as an old and exhausted combination of a magnetic oxide coating and a non-magnetic carrier, with no change in their respective functions. See Finding 59 (PA 3554); also *Thomas & Betts Co.* v. *Steel City Electric Co.*, 122 F. 2d 304 (CA 2, 1941), and *Hobbs* v. *Wisconsin Power & Light Co.*, 250 F. 2d 100, 106-7 (CA 7, 1957), which are directly in point. In the *Hobbs* case the court cited numerous authorities, including the leading case of *Lincoln Engineering Co.* v. *Stewart Warner Corp.*, 303 U. S. 545, 549-50, where this Court said "The improvement of one part of an old combination gives no right to claim that improvement in combination with other old parts which perform no new function in combination"; also the *A & P* v. *Supermarket* case, 340 U. S. 147, 152, containing the now much-quoted statement of this Court regarding the "improbability of finding invention in an assembly of old elements."

Furthermore the record member claims at best involve only the substitution of one thing for another of the same class in an old structure, which does not constitute invention as held by the courts in many cases, including *Johnson Laboratories* v. *Meissner*, 98 F. 2d 937, 948 (CA 7, 1938).

In an attempt to overcome the *Lincoln Engineering* and other case last above cited, plaintiffs below and petitioner here have urged the case of *Minnesota Mining & Mfg. Co. v. International Plastic Corporation, et al.*, 159 F. 2d 555 (CA 7), as refuting our position, but it is evident from that decision that there were new features of both the tape backing and coating which, in cooperation, produced a new result. Obviously that is not the case here since the non-magnetic carrier (backing) is just the same as it was in prior recording tapes and the alleged novelty could therefore only be in the oxide, which the Courts below found; on abundant evidence, was old and available to any knowledgeable reader of the literature.

It should be further noted that Williams is not charged with the manufacture or sale of "magnetic impulse record members" to which claim 26 is directed and the claim was asserted against it only as an alleged contributory infringer because of the sale of iron oxides which were shown to be useful and used for many other purposes as well as for use as a coating for magnetic tape.

FURTHER COMMENTS ON PETITION.

Armour's petition consists largely of assertions based upon assumptions of fact which are contradicted by the evidence and are contrary to the concurring findings and conclusions reached thereon by the Courts below through careful consideration of the patent phase of this case.

With regard to the asserted commercial achievement of what the patent disclosed, the record shows that the 3M tape made with the ferrosoferric oxide (Fe_3O_4) claimed in it was *not successful*—it died commercially (PA 943-44, 957)—and that the commercially successful 3M tape became so through a tie-in to the machines of the Armour-licensed industry (DA 577-8, 813) and by virtue of having

been made by trade secrets not learned from Camras (PA 972-3). The differences between such tape and earlier tapes were "matters of tape manufacturing tricks and not oxide" (3M letter, DA 466).

The petition relies heavily upon assertions concerning OSRD Report No. 5325 which distort its contents and are not supported by the evidence. It gratuitously assumes (p. 5) that the investigation under that report was related to knowledge of German developments. It asserts without foundation that "our Government, in 1945, delegated experts * * * to investigate * * * with a view to recommending the best magnetic tape" and that these experts "with all of the prior art available * * * concluded * * * that the best magnetic tape was that coated with low coercive force 'Magnetite' * * *, a material used by the Germans" which "had a coercive force, H_c, of 115 to 130". The evidence does not justify any part of those assertions.

The report itself is dated June 30, 1945, and in view of the wide range of subjects investigated (see its Table of Contents, DA 476), the work must have occurred before publication of the wartime tape recording developments in Germany. Indeed, Report 5325 refers (PA 2754) to an earlier Final Report No. 3399 on the same investigation (found in part at page 211 of the record in the Court of Appeals) which is dated February 29, 1944.

Report 5325 states that the object with respect to powder coated tape was to produce one "the performance of which would be comparable with that of homogeneous magnetic recording media", i.e., wire or metal tape. It states that such tape was produced "whose performance exceeds that of any commercial homogeneous medium" (PA 2764). So its definitely limited object in this respect was fully achieved.

Furthermore, and far more pertinent to the issues, the OSRD Report teaches that in the work reported it had

been found that "magnetite powder gives the best recording results" (PA 2765). What the Camras patent claims as "ferrosoferric oxide, Fe_3O_4" is magnetite powder and, therefore, is the very class of material which this report taught the art to use.

The report stated further that "*a satisfactory grade*" of magnetite powder was "an article of commerce in large production selling at • • • a low price" (PA 2765); and in a part omitted from plaintiffs' reproduction of it, it stated with reference to then commercial magnetites that "The true magnetic properties of the powder dispersion • • • are difficult to determine" but that the "readily measurable 'effective' magnetic properties indicate a coercive force between 100 and 200 oersteds • • •" (DA 479). In still another part omitted from plaintiffs' Appendix, it teaches: "The ratio of coercive force/remanence • • • becomes, therefore, an approximate merit figure for the suitability of a carrier material to record high frequencies relative to low frequencies" (DA 477). This of course plainly says that the higher the coercive force of the record material the greater is its suitability for recording high frequencies; and, as Armour's Director admitted, a low tape speed "goes along with" the high response in recording obtainable with high coercive force (DA 720).

Therefore, plaintiffs have been attempting to cover by the patent in suit the magnetite powders which the OSRD report taught the recording art to use, as to all such powders that will show by property measurements a coercive force value of 200 oersteds or above. See claims 4 and 13 of the patent. Yet the report itself disclosed the 200 oersteds value of the Camras claims, and since Armour's petition (p. 6) now indicates that Camras has known what it disclosed since before his work, the petition indicates that he claimed as his invention matter known to him to be in the prior art.

The petition asserts further to this Court (p. 9), as plaintiffs represented for years in the Patent Office proceedings, that "The iron oxide prior art • • • failed to disclose synthetic, acicular magnetic iron oxides of over 200 oersteds coercive force". That assertion was completely belied by the evidence showing the properties of the synthetic (artificial) magnetic iron oxides described by the Williams & Thewlis, Kraeber & Luyken, Bureau of Mines and Welo & Baudisch publications, and also by the evidence of Mepham's oxides Nos. 277 and 278 of 1942 and the oxides Armour delivered early in 1946 for 3M's unrestricted use.

The Bureau of Mines Bulletin shows even on its face that "if magnetite is produced by the reduction of hematite below 600° C. it will have a coercive force of several hundred oersteds" (PA 2981), and since "hematite" is the ordinary ferric oxide, Fe_2O_3 (PA 663, 730, 3407-8) and the same publication shows (PA 2962) that heating the alpha hydrate (of ferric oxide) produces the ordinary Fe_2O_3 and that reactive varieties of Fe_3O_4 (magnetite) result from the gaseous reduction of ordinary Fe_2O_3, not only the oxide claimed by Camras and its properties but also the method claimed as his invention were fully disclosed in this prior publication, as the District Court found (PA 3526, 3537, 3551). Indeed, the evidence and Finding 27 (PA 3548) strongly indicate that Camras merely followed this publication in selecting the oxide claimed as his invention.

In the petition Armour, as did the plaintiff in the courts below, has resorted to a confusing array of numbers, words, symbols and curves to characterize properties which were and are inherent in old products, so as to pretend that the oxides were new and involved "invention", by representing that the labels and numbers they adopted to characterize them could not be found all together in any earlier written description of the very same oxides.

Of course it is not invention to recite or delineate, even in novel terms, the qualities or characteristics of old things (which at most is all that Camras did); and even if he had been the first to perceive certain of the qualities or advantages of prior products or methods, that would not constitute invention. As stated in *General Electric Co.* v. *Jewel*, 326 U. S. 242, 249: "It is not invention to perceive that the product which others had discovered had qualities they failed to detect". And in *National Lead Co.* v. *Marzall*, 198 F. 2d 296, 298 (CA, D. C., 1952), the court said: "Increase in knowledge of its properties did not call for the grant of a patent". But here Camras did not even discover any properties or any use of the prior art oxides which had not been fully recognized and disclosed.

CONCLUSION

It is respectfully submitted that the petition is clearly without foundation and should be denied.

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